



Case Study

application | Asphalt Pavement Overlay
location | Brooks, Alberta Canada
product | Mirafi® FG100 Paving Grid

job owner | City of Brooks
engineer | Focus Engineering (Medicine Hat)
contractor | Brooks Asphalt

TenCate™ develops and produces materials that function to increase performance, reduce costs and deliver measurable results by working with our customers to provide advanced solutions.

This high strength at low strains is key to retarding reflective cracking that occurs in asphalt pavement overlays.

THE CHALLENGE

The Brooks airport is located 5.5km (3.5mi) NNW of the City of Brooks. It was originally constructed in the mid 1970's. Throughout the 1980's, funding had been provided by the Alberta Community Airport Development Program for runway paving, drainage repairs, runway overlay and the installation of navigation aids. The airport has grown to become an integral part of the Alberta airport network with the airport serving the agricultural community, flight training and air charter needs in the area. With this increased traffic the airport's runway 12-30 was showing signs of distress with significant longitudinal cracking occurring in the pavement. The City of Brooks hired Focus Engineering out of Medicine Hat Alberta to provide a recommendation and design to minimize future reflective cracking.

THE DESIGN

Upon investigating the condition of the existing pavement on runway 12-30, Focus Engineering, decided on a major pavement rehabilitation plan. Runway 12-30 is 853m (2800 ft) long. The new pavement system was to consist of milling the existing pavement, crack filling, asphalt leveling course, installation of a fiberglass paving grid, asphalt overlay and lane markings. Focus Engineering approved Mirafi® FG100 fiberglass paving grid for the interlayer material. Mirafi® FG100 is composed of a high modulus 100kN/m (6,852lb/ft) fiberglass paving grid with a light-weight nonwoven geotextile bonded to the back side. The nonwoven geotextile provides superior adhesion of Mirafi® FG100 to the leveling course. The purpose of using a fiberglass paving grid is their high strength at 2% strains.



Deploying Mirafi® FG100 over the asphalt levelling course.



Tractor mounted lay-down rig.



Asphalt emulsion tack coat being applied.

THE CONSTRUCTION

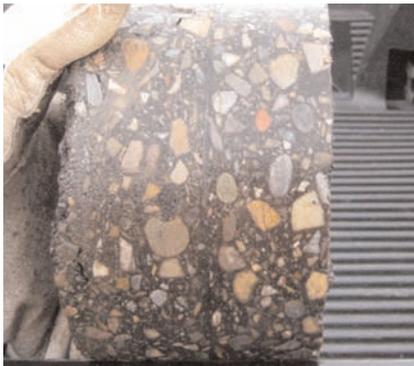
Once mobilized on site, Brooks Asphalt the successful bidder, started the milling process removing 50mm (2in) of asphalt filling all identified cracks, and placed a 13mm (1in) asphalt leveling course. The surface was cleaned and a PG 58-28 asphalt emulsion was applied at a application rate of 0.29kg/m² (0.1gal/yd²). Next, using a paving grid lay down rig mounted to a tractor, the contractor started to install Mirafi® FG100. Any wrinkles were slit and relaid flat. In all, Brooks Asphalt placed 22,000m² (26,300yd²) in 2.5 days with a 3 man crew. The final placement of the 50mm (2in) overlay started at 7:00 am and was completed by late afternoon. Focus Engineering took core samples four days after completion to ensure adequate bond between the Mirafi® FG100 interlayer and the asphalt overlay. The cores all show excellent adhesion between the two layers.

THE PERFORMANCE

The Mirafi® FG100 has performed as expected.



Start of final asphalt surfacing.



Asphalt core showing integral bond using Mirafi® FG100 between existing and new pavement layers.



Installing the asphalt overlay on Mirafi® FG100.

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